



## ULTRAVIOLET DISINFECTION SYSTEM

Installation Instructions &  
Owner's Manual

**S12Q, S12Q-GOLD,  
S24Q, S24Q-GOLD, S40Q**



EPA # 57987-CN-001

425 Clair Road West, P.O. Box 1719 • Guelph, ON • N1H 7X4 • Canada  
t. 519.763.1032 • f. 519.763.5069 • t.f. 1.800.265.7246  
e. [water@r-can.com](mailto:water@r-can.com) • i. [www.r-can.com](http://www.r-can.com)

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**SYMBOLS:**



**Caution**



**Protective Ground**



**Electrical Warning**



**Fragile**



**Eye Protection**

## SAFETY INSTRUCTIONS:

- ⚠ WARNING** - to guard against injury, basic safety precautions should be observed, including the following:
1. **READ AND FOLLOW ALL SAFETY INSTRUCTIONS.**
  2. **CAUTION** - Disconnect power before servicing.
  3. **⚠ ⚡ DANGER** - To avoid possible electric shock, special care should be taken since water is present near electrical equipment. Unless a situation is encountered that is explicitly addressed by the provided maintenance and troubleshooting sections, do not attempt repairs yourself, refer to an authorized service facility.
  4. **⚠ ⚡** Carefully examine the disinfection system after installation. It should not be plugged in if there is water on parts not intended to be wet.
  5. **⚠ ⚡** Do not operate the disinfection system if it has a damaged cord or plug, if it is malfunctioning or if it is dropped or damaged in any manner.
  6. **⚠ ⚡** Always disconnect water flow and unplug the disinfection system before performing cleaning or maintenance activities. Never yank the cord to remove from an outlet; grasp the wall plug and pull to disconnect.
  7. **⚠** Do not use this disinfection system for other than intended use (potable water applications). The use of attachments not recommended or sold by the manufacturer / distributor may cause an unsafe condition.
  8. **⚠** Intended for indoor use only. Do not install this disinfection system where it will be exposed to the weather or to temperatures below freezing. Do not store this disinfection system where it will be exposed to the weather. Do not store this disinfection system where it will be exposed to temperatures below freezing unless all water has been drained from it and the water supply has been disconnected.
  9. **⚠** Read and observe all the important notices and warnings on the water disinfection system.
  10. **⚠ ⚡** If an extension cord is necessary, a cord with a proper rating should be used. A cord rated for less Amperes or Watts than the disinfection system rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
  11. **SAVE THESE INSTRUCTIONS.**
- ⚠ ⚡ Warning:** The UV light given off by this unit can cause serious burns to unprotected eyes and skin. Never look directly at an illuminated UV lamp. When performing any work on the UV disinfection system always unplug the unit first. Never operate the UV system while the UV lamp is outside of the UV chamber.

**Note: The UV lamp inside of the disinfection system is rated at an effective life of approximately 9000 hours. To ensure continuous protection, replace the UV lamp annually.**

## IMPROVED BALLAST FEATURES:

- new overmoulded lamp connector (except S40Q)
- improved transient protection
- improved surge protection
- improved EMI filtering
- improved alarm circuitry to warn of fuse failure (only applies to S12Q & S12Q-GOLD)
- improved lamp starting
- brownout protection
- conformal coated circuit board to assist with condensation protection
- Patent US 6,274,988 B1(only applies to S12Q & S12Q-GOLD)
- universal AC input (only applies to S24Q, S24Q-GOLD & S40Q)

## WATER CHEMISTRY:

Water quality is extremely important for the optimum performance of your UV system. The following levels are recommended for installation:


- **Iron:** < 0.3 ppm (0.3 mg/L)
- **Hardness\*:** < 7 gpg (120 mg/L)
- **Turbidity:** < 1 NTU
- **Manganese:** < 0.05 ppm (0.05 mg/L)
- **Tannins:** < 0.1 ppm (0.1 mg/L)
- **UV Transmittance:** > 75% (call factory for recommendations on applications where UVT < 75%)

\* Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness is over 7 gpg, the water should be softened.


If your water chemistry contains levels in excess of those mentioned above, proper pre-treatment is recommended to correct these water problems prior to the installation of your UV disinfection system. These water quality parameters can be tested by your local dealer, or by most private analytical laboratories. Proper pre-treatment is essential for the UV disinfection system to operate as intended.

## INSTALLING YOUR DISINFECTION SYSTEM:


- The complete water system, including any pressure or hot water tanks, must be sterilized before start up by flushing with chlorine (household bleach) to destroy any residual contamination.
- The disinfection system should be connected to a ground fault interrupter.
- The disinfection system is intended for indoor use only, do not install disinfection system where it may be exposed to the weather.
- Install the disinfection system on cold water line only.
- If treating the entire house, install the disinfection system before any branch lines. Ideally, your disinfection system should be the last treatment your water receives prior to use.
- A 5 micron sediment filter must precede the disinfection system.


 1. Remove the disinfection system from the shipping carton. For shipping purposes, the UV lamp is packed in a separate tube. Set the lamp aside for use later. The disinfection system should be mounted in the horizontal position, with the inlet/outlet ports facing up. If the system must be installed in the vertical position, make sure the inlet port is the one at the bottom of the system. Mount the unit in a clear space with at least 36" (91.5 cm) of space at the lamp end to facilitate lamp and/or quartz sleeve removal. Fasten the disinfection system to a suitable mounting platform with reinforcements.

2. It is recommended to install a suitable flow restrictor in order that the flow rate not exceed the manufacturers recommended flow rating. The use of a by-pass with shut-off valves is recommended for emergency use of untreated water when your disinfection system is being serviced. Apply two turns of Teflon tape around the port threads to ensure a tight joint before connecting unions.

 **Note:** When the UV unit has been by-passed for service, the complete water system must be sterilized once again with chlorine to destroy any contamination that may have passed during by-pass.

**DO NOT SOLDER CONNECTIONS WHILE ATTACHED TO THE DISINFECTION SYSTEM AS THIS COULD DAMAGE THE O-RING SEALS.**



 3. When all plumbing connections are made, **slowly** turn on the water supply and check for leaks. The most likely cause for leaks is from the o-ring seal. In case of a leak, shut water off, drain cell, remove the retainer nut, wipe the o-ring and threads clean and re-install.

 4. Once it is determined that there are no leaks, **very carefully** slide the UV lamp into the UV chamber making sure the lamp pins are accessible for connection with the lamp connector cable. Attach the lamp connector to the UV lamp, as outlined in "UV Lamp Replacement" on page 3. Plug the disinfection system into the ground fault interrupter, and check to see if the UV lamp is illuminated. **NEVER LOOK DIRECTLY AT THE BURNING UV LAMP.** Allow the water to run for a few minutes to clear any air or dust that may be in the cell.


**Note:** When there is no flow, the water in the cell will become warm, as the UV disinfection system lamp is always on. To remedy this, run a cold water tap anywhere in the house for a minute to flush out the warm water.

**Note:** As the system requires time to reach its full operating capacity, please allow the disinfection system to operate 3 - 5 minutes prior to using the water from the unit. In addition, to clear any air or debris from the system, open the faucet and allow water to run through the disinfection system for 2 - 3 minutes.





## OPERATING & MAINTENANCE INSTRUCTIONS:

-  • Always disconnect power before performing any work on the ultraviolet disinfection system.
-  • Regularly inspect your disinfection system unit to ensure that the UV light is still glowing and that its LED indicator is still glowing green.
- Replace the UV lamp annually ( or biennially if seasonal cottage use) to ensure a high bacteria and virus kill rate.
- Always drain the UV cell when closing a cottage or leaving the unit in an area subject to freezing temperatures.





### A. UV LAMP REPLACEMENT:

-  To replace the lamp, there is NO need to disconnect the system from the water supply, nor to drain the water from the reactor chamber. Lamp replacement is a quick and simple procedure requiring no special tools. The UV lamp must be replaced after 9,000 hours of continuous operation (approximately one year) in order to ensure adequate disinfection.

#### *S12Q, S12Q-GOLD, S24Q, and S24Q-GOLD*




-  1. Disconnect main power source and allow the unit to power down. Remove the lamp connector by sliding the metal retaining ring away from the body of the connector. Remove connector and lamp from the reactor chamber. Separate the lamp from the connector. Do not twist the lamp from the connector, simply slide the two apart.
-   Avoid touching the lamp on the glass portion. Handling the lamp at the ceramic ends is acceptable, however if you must touch the lamp glass, please use gloves, or a soft cloth. Fully remove the lamp from the reactor chamber being careful not to angle the lamp as it is removed from the chamber. If the lamp is removed on an angle, pressure will be applied on the inside of the quartz sleeve, causing the sleeve to fracture.
-  2. To install a new lamp, first remove the lamp from its protective packaging, again being careful not to touch the lamp glass itself. Carefully insert the lamp into the reactor vessel (actually inside the quartz sleeve). Insert the lamp fully into the chamber leaving about two inches of the lamp protruding from the chamber. Next, attach the connector to the UV lamp. The connector is “keyed” and will only allow correct installation in one position. Ensure the connector is fully seated onto the UV lamp.
- 3. Once the lamp is fully seated on the connector, slide the connector over the aluminum retaining nut. Make sure the metal retaining ring on the connector is pulled away from the body of the connector in order that the connector may slide fully over the retaining nut. Once the connector is located fully over the retaining nut, slide the metal ring back in to lock the connector in place. As this connector is keyed to the reactor chamber, make sure the depression on the connector is located over the ground lug located on the reactor chamber.

#### *S40Q*

-   1. Disconnect main power source. Remove lamp connector from gland nut (with the aid of a slot screwdriver) and carefully slide UV lamp slightly out of chamber. Remove lamp connector from lamp and fully remove lamp (be extremely careful when handling UV lamp as they are extremely fragile).
-   2. To install the new lamp, carefully remove from protective tube being careful not to touch the lamp “glass” with your hands. Slide UV lamp into the reactor chamber. Affix lamp connector to the UV lamp, slide lamp fully into cell, press fit lamp connector into aluminum gland nut (a light application of silicone lubricant will assist this operation).

### B. QUARTZ SLEEVE REPLACEMENT AND/OR CLEANING:

If the water contains any hardness minerals (calcium or magnesium), iron or manganese, the quartz sleeve will require periodic cleaning. To remove the quartz sleeve, first remove the UV lamp as outlined above:

-  a) Shut off water supply and drain all lines.
- b) Drain the UV chamber (use a small bucket under the unit to prevent a spill), using drain port provided.
-   c) Remove aluminum gland nuts from chamber, checking for the free floating spring inside sleeve at the opposite end to the lamp connection (do not allow quartz sleeve to fall).
- d) Carefully remove o-rings from the quartz sleeve. As the o-ring may tend to adhere to the quartz sleeve, it is recommended to replace the o-rings annually.
- e) Clean the quartz sleeve with a cloth soaked in CLR, vinegar or some other mild acid and then rinse, avoiding the introduction of any water to the inside of the sleeve.

- f) Re-assemble the quartz sleeve with spring in the UV chamber allowing the sleeve to protrude an equal distance from both ends of the UV chamber.
- g) Wet the o-rings and slide onto each end of the quartz sleeve and reassemble the gland nuts (hand tight is sufficient).
- h) Re-tighten all connections, turn on water and check for leaks.
- i) Re-install the UV lamp and lamp connector as per prior instructions.
- j) Reconnect system to power source.

**Note: If the system is put on a temporary by-pass or if it becomes contaminated after the disinfection system, it will be necessary to shock the system with household bleach for a full 20 minutes before resuming use of the water.**

### C. UV SENSOR REPLACEMENT AND/OR CLEANING (Applies to S12Q-GOLD & S24Q-GOLD systems only):

1. Mineral deposits and sediment may accumulate on the sensor probe decreasing the UV detection rate. Good maintenance of filtration equipment will reduce the accumulation of residues. If necessary, remove the sensor probe after a few months and proceed with cleaning process. Repeat the process as often as necessary to keep the sensor probe clean.
- ⚡ 2. Disconnect the UV sensor from the rear of the disinfection system and drain the reactor chamber as per prior instructions. Remove the sensor probe by unscrewing retaining nut. Do not attempt to disassemble the sensor probe itself. Any tampering with the internal components of the sensor probe will result in voiding the warranty. The probe face should be cleaned with a commercially available scale remover (CLR, Lime-Away, etc.) and a lint free cloth. Carefully reassemble the sensor probe into the sensor boss by first inserting the sensor o-ring and then the sensor itself. Screw the sensor retaining nut and tighten to achieve a water tight seal. **DO NOT OVER TIGHTEN.** Attach the sensor cable to the connector on the rear of the UV disinfection system.

## WARNING SYSTEMS:

### LAMP FAILURE SYSTEM (Standard on S12Q, S24Q, S40Q)

The audible alarm and indicator lights on the systems continuously monitor the lamp operation. If the lamp does not start at any time, the indicator light will not glow and the audible alarm will sound. This alarm indicates that the UV lamp is no longer operating and must be corrected. Please refer to Troubleshooting Guide for corrective procedures.

### ULTRAVIOLET MONITORING SYSTEM (Standard on GOLD models)

The ultraviolet sensor system features a complete warning system for continuous water protection by constantly sensing the UV INTENSITY at the inside surface of the cell. The system features a single LED indicator light, which will show three distinct colours, **GREEN, YELLOW, and RED**. When the UV output level changes, the warning system will operate in the following manner:

**GREEN** indicates that the UV intensity is satisfactory and the unit is in good working order.

**YELLOW** indicates that the UV intensity is reduced, which could be due to any of the following factors :

- The lamp is losing strength and will soon need to be replaced.
- The quartz sleeve and/or the sensor probe have become dirty. Mineral deposits or sediment in the water that was not detected during the original water analysis may be the cause for this. The quartz sleeve and sensor probe should be cleaned and the system re-installed to determine if dirt was the cause of the yellow light. If the LED light switches to yellow soon after the unit is installed or the lamp has been replaced, dirt accumulation is most likely the cause.
- Intermittent voltage drop in the household power supply reducing the lamp output. The lamp will return to normal when the power is restored to full voltage. Note : The monitoring system will not operate during power failures.

**FLASHING RED** indicates that system cut-off is imminent where solenoid is fitted. Immediate action is required.

**RED** indicates that the unit needs immediate attention, the audible alarm will automatically sound when the LED monitor light switches to red. If the lamp has been in service for a year or more it should be replaced. The quartz sleeve and/or sensor probe may require cleaning. The alarm will continue until the sensor detects adequate UV intensity. When a lamp is replaced it is recommended to clean the quartz sleeve and sensor probe prior to returning the system to service.

### SOLENOID CONTACTS (Standard on S12Q-GOLD & S24Q-GOLD models)

GOLD units come equipped with the capability of adding an optional solenoid valve available from your dealer. This normally closed solenoid will work in conjunction with the UV monitoring system physically stopping the water flow if the UV sensor determines that the water is not being adequately treated. The LED indicator will be red and the audible alarm will be sounding. Water will only be allowed to flow when the UV disinfection system senses that the quality of the water has returned to a safe state. Ideally, the solenoid valve should be installed on the influent side of the disinfection system. To install, disconnect power supply prior to opening disinfection system cover. Plumb solenoid valve

into existing plumbing (1" for 12 & 24 gpm models). Install "normally-closed" solenoid valve within three (3) feet of disinfection system. Remove the screws on the left and right side of the front aluminum panel allowing this panel to swing open. Remove the circuit board cover plate to expose the circuit board. Remove the round, black plastic cap covering the access hole for the solenoid wire (cap located on back panel next to main power cord). Slide the solenoid power cord (part# CS-MOL) through the hole and affix the connector to the exposed contacts on the circuit board marked "SOLENOID". The connector will only slide onto the mating pins in one direction. Attach the ground wire (green or green/yellow) to the ground lug on the disinfection system to finish the wiring connections.

To complete the installation, push the strain relief into the hole on the backside of the unit. The strain relief allows for the wire to run through its centre and can easily be installed using pliers. Once all the parts are connected, reattach the circuit board cover plate and secure the front panel of the disinfection system. Plug the disinfection system into the electrical outlet to return it to service. Please remember that the unit must have power in order to allow any water to pass through the unit. If an outside tap is required at all times, including when there may be no power, plumb that line prior to the solenoid and remember that this line will not be protected from microbiological contaminants. The solenoid valve will only open when the UV sensor detects adequate UV intensity within the reactor chamber.

**Note:** If a normally closed solenoid valve is purchased from another source, the use of the manufacturers solenoid cord is strongly recommended as it comes with the necessary connectors to mate with the circuit board. This cord can be purchased from a dealer under the part number **CS-MOL**.

### **INFRARED OUTPUT - REMOTE ALARM (Standard on S12Q-GOLD & S24Q-GOLD models)**

The electronics incorporated in the monitored units incorporate a micro controller, which operates an infrared (IR) output. This IR output can be used for diagnostic purposes as well as acting as an interface for an optional remote audible/visual alarm package available from your dealer. This IR-ALARM comes with the IR interface and 15.24 meters (50') of cable for remote monitoring of the audible and visual signals provided by the UV monitoring mechanism.



***THIS ADVANCED WARNING SYSTEM HAS BEEN INSTALLED TO PROVIDE YOU WITH THE OPTIMUM PRECAUTIONS TO ENSURE HIGH EFFICIENCY IN THE PROTECTION AGAINST MICROBIOLOGICAL CONTAMINATION IN YOUR WATER. DO NOT DISREGARD THE WARNING LIGHTS.***

***THE BEST WAY TO CHECK UV OPERATION IS TO HAVE THE WATER TESTED FOR BACTERIA BY A RECOGNIZED TESTING AGENCY ON A REGULAR BASIS.***

### **WARRANTY:**

Manufacturer warrants the ultraviolet disinfection system's hardware and electrical systems to be free from defects in material and workmanship for a period of **five (5)** years from the date of purchase by the original owner (consumer) on a pro-rated basis. Manufacturer warrants the ultraviolet lamps and sensor probes to be free from defects in material and workmanship for a period of **one (1)** year and the reactor chamber for a period of **seven (7)** years. The warrantor will at its option and expense, either repair or replace such units subject to the following conditions, exceptions, and exclusions.

### **CONDITIONS, EXCEPTIONS, AND EXCLUSIONS**

The foregoing limited Warranty is subject to the following terms and conditions:

**1.** Water passed through the unit must fall within the following parameters:

- a) Iron: < 0.3 ppm (0.3 mg/L)
- b) Hardness\*: < 7 gpg (120 mg/L)
- c) Turbidity: < 1 NTU
- d) Manganese: < 0.05 ppm (0.05 mg/L)
- e) Tannins: < 0.1 ppm (0.3 mg/L)
- f) UV Transmittance: > 75% (call factory for recommendations on applications where UVT < 75%)

*\* Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve and/or sensor probe is cleaned periodically. If total hardness is over 7 gpg, the water should be softened*

**Warranty will be void, if the proper steps are not taken to ensure that these impurities are not present.**

- 2.** This limited Warranty shall not apply to any unit which has been repaired or altered by anyone other than the Warrantor or by a person authorized by the Warrantor, nor to any units which have been subject to misuse, neglect, or accident.
- 3.** This limited Warranty runs exclusively to the original Consumer and with respect to the original installation only.
- 4. WARRANTOR SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**
- 5.** This limited Warranty excludes the cost of labour in removing any defective unit or installing any replacement unit. This limited Warranty applies only to a unit when returned to the Warrantor at the owner's expense and in accordance with shipping instructions received from the Warrantor.

# TROUBLESHOOTING GUIDE

**Caution:** When performing any work on the disinfection system unplug the unit first and never look directly at the burning UV lamp.

<b>SYMPTOM</b>	<b>POSSIBLE CAUSES</b>	<b>REMEDY</b>
<b>PRESSURE DROP</b>	<ul style="list-style-type: none"> <li>the sediment pre-filter is clogged</li> </ul>	<ul style="list-style-type: none"> <li>replace filter cartridge with appropriate five micron cartridge, <i>Note:</i> check source water supply as fluctuations may occur in source pressure</li> </ul>
<b>HIGH BACTERIA COUNTS</b>	<ul style="list-style-type: none"> <li>quartz sleeve is stained or dirty</li> </ul>	<ul style="list-style-type: none"> <li>clean sleeve with scale cleaner and eliminate source staining problem</li> </ul>
	<ul style="list-style-type: none"> <li>the UV lamp is spent</li> </ul>	<ul style="list-style-type: none"> <li>replace UV lamp</li> </ul>
	<ul style="list-style-type: none"> <li>change in feedwater quality</li> </ul>	<ul style="list-style-type: none"> <li>have the source water tested to ensure it is still within the allowable parameters for use with this unit</li> </ul>
	<ul style="list-style-type: none"> <li>contamination after the disinfection system</li> </ul>	<ul style="list-style-type: none"> <li>it is imperative that the effluent water stream be shocked with chlorine after the water leaves the disinfection system - the disinfection system must have a bacteria free distribution system to work effectively</li> </ul>
<b>WARM PRODUCT WATER</b>	<ul style="list-style-type: none"> <li>common problem caused by infrequent use</li> </ul>	<ul style="list-style-type: none"> <li>run water until it returns to ambient temperature</li> </ul>
<b>WATER APPEARS "MILKY"</b>	<ul style="list-style-type: none"> <li>caused by air in the water lines</li> </ul>	<ul style="list-style-type: none"> <li>run water until air is purged</li> </ul>
<b>UNIT LEAKING WATER</b>	<ul style="list-style-type: none"> <li>problem with o-ring seals (on gland nuts and/or sensor probe on monitored units)</li> </ul>	<ul style="list-style-type: none"> <li>ensure the o-ring is in place, check for cuts or abrasions, clean o-ring, moisten with water and re-install, replace if necessary (Part# OR-212)</li> </ul>
	<ul style="list-style-type: none"> <li>condensation on reactor chamber caused by excessive humidity</li> </ul>	<ul style="list-style-type: none"> <li>check location of disinfection system and control humidity</li> </ul>
	<ul style="list-style-type: none"> <li>inadequate inlet / outlet port connections</li> </ul>	<ul style="list-style-type: none"> <li>check thread connections, reseal with Teflon™ tape and re-tighten</li> </ul>



## **S12Q TROUBLESHOOTING GUIDE**

<b>SYSTEM STATUS</b>			<b>REMARKS</b>
<b>LAMP STATUS (GREEN LED)</b>	<b>AUDIBLE ALARM</b>	<b>UV LAMP</b>	
ON	OFF	ON	<ul style="list-style-type: none"> <li>Correct operating conditions, unit is functioning properly.</li> </ul>
OFF	ON	OFF	<ul style="list-style-type: none"> <li>The UV lamp is spent, requires replacement lamp.</li> </ul>
			<ul style="list-style-type: none"> <li>UV lamp not connected to power source. Check connection and reconnect lamp.</li> </ul>
			<ul style="list-style-type: none"> <li>Ballast has switched off. To reset ballast remove power to unit by disconnecting power cord from electrical plug for a minimum of 30 seconds then reapply power.</li> </ul>
OFF	OFF	ON	<ul style="list-style-type: none"> <li>LED indicator burnt out or wire lead broken. Replace LED assembly.</li> </ul>

## **S24Q & S40Q TROUBLESHOOTING GUIDE**

<b>SYSTEM STATUS</b>				<b>REMARKS</b>
<b>POWER ON (RED LED)</b>	<b>LAMP STATUS (GREEN LED)</b>	<b>AUDIBLE ALARM</b>	<b>UV LAMP</b>	
ON	ON	OFF	ON	<ul style="list-style-type: none"> <li>Correct operating conditions, unit is functioning properly.</li> </ul>
OFF	OFF	OFF	OFF	<ul style="list-style-type: none"> <li>The unit is not plugged into the electrical outlet. Plug unit into receptacle and ensure proper power source.</li> </ul>
				<ul style="list-style-type: none"> <li>Power not connected to internal components (circuit board or ballast). Reconnect power connector.</li> </ul>
				<ul style="list-style-type: none"> <li>The GFI or one of the circuit breakers is tripped. Re-set the GFI or circuit breaker.</li> </ul>
ON	OFF	ON	OFF	<ul style="list-style-type: none"> <li>The UV lamp is spent, requires replacement lamp.</li> </ul>
				<ul style="list-style-type: none"> <li>UV lamp not connected to power source. Check connection and reconnect lamp.</li> </ul>
				<ul style="list-style-type: none"> <li>Ballast has switched off. To reset ballast remove power to unit by disconnecting power cord from electrical plug for a minimum of 30 seconds then reapply power.</li> </ul>
ON	OFF	OFF	ON	<ul style="list-style-type: none"> <li>LED indicator burnt out or circuit board defective. Replace circuit board.</li> </ul>
ON	OFF	ON	ON	<ul style="list-style-type: none"> <li>Defective circuit board. Contact authorized dealer.</li> </ul>

# **S12Q-GOLD & S24Q-GOLD TROUBLESHOOTING GUIDE**

<b>SYSTEM STATUS</b>			<b>REMARKS</b>
<b>UV INTENSITY (LED)</b>	<b>AUDIBLE ALARM</b>	<b>UV LAMP</b>	
GREEN	OFF	ON	<ul style="list-style-type: none"> <li>• Correct operating conditions unit is functioning properly.</li> </ul>
YELLOW	OFF	ON	<ul style="list-style-type: none"> <li>• System performance has declined due to stained or dirty quartz sleeve and or sensor lens, or the lamp is beyond its useful life.                             <ul style="list-style-type: none"> <li>• Clean sleeve and sensor probe lens or replace if required.</li> <li>• Replace lamp with manufacturer replacement.</li> <li>• Replace sensor with manufacturer replacement.</li> <li>• Always Wet Sensor Lens prior to inserting sensor.</li> <li>• check water quality (see page 2 for water parameters)</li> </ul> </li> </ul>
FLASHING RED	INTERMITTENT	ON	<ul style="list-style-type: none"> <li>• System failure is imminent due to stained or dirty quartz sleeve or lamp is beyond useful life                             <ul style="list-style-type: none"> <li>• Clean sleeve and sensor probe lens or replace if required.</li> <li>• Replace lamp with manufacturer replacement.</li> <li>• Replace sensor with manufacturer replacement.</li> <li>• Always Wet Sensor Lens prior to inserting sensor.</li> <li>• check water quality (see page 2 for water parameters)</li> </ul> </li> </ul>
RED	ON	ON	<ul style="list-style-type: none"> <li>• UV Sensor has not detected enough UV Intensity to adequately protect the water due to stained or dirty quartz sleeve or the lamp is beyond its useful life.                             <ul style="list-style-type: none"> <li>• Clean sleeve and sensor probe lens or replace if required.</li> <li>• Replace lamp with manufacturer replacement.</li> <li>• Replace sensor with manufacturer replacement.</li> <li>• Always Wet Sensor Lens prior to inserting sensor.</li> <li>• check water quality (see page 2 for water parameters)</li> </ul> </li> </ul>
RED	ON	OFF	<ul style="list-style-type: none"> <li>• Ballast not functioning,                             <ul style="list-style-type: none"> <li>• Reset Ballast by removing power for 30 seconds then reapply.</li> <li>• Check wiring to ensure ballast is plugged into circuit board.</li> <li>• Replace ballast with manufacturer replacement</li> </ul> </li> <li>• Lamp is spent. Replace lamp with manufacturer replacement</li> </ul>
GREEN	OFF	OFF	<ul style="list-style-type: none"> <li>• Defective UV sensor assembly. Replace sensor assembly with manufacturer replacement.</li> <li>• Calibration board improperly seated. Check board to ensure proper engagement with main circuit board.</li> <li>• Defective sensor assembly.</li> </ul>

## S12Q PARTS BREAKDOWN

S36RL \_\_\_\_\_ UV LAMP  
QS-012 \_\_\_\_\_ QUARTZ SLEEVE  
OR-212 \_\_\_\_\_ O RING  
BA-ICE-3F \_\_\_\_\_ BALLAST (100-130V/50-60Hz. or  
200-250V/50-60Hz.)  
SUB-WH/LED512 LED INDICATOR ASSEMBLY  
RN-001 \_\_\_\_\_ RETAINING NUT  
CS-001/Q \_\_\_\_\_ CORD SET (120V.)  
CS-EU/Q \_\_\_\_\_ EUROPEAN "SCHUKO" CORD SET (230V.)  
DP750 \_\_\_\_\_ RETAINING NUT PLUG  
SP-3/8 \_\_\_\_\_ 3/8" DRAIN PLUG  
SP008 \_\_\_\_\_ QUARTZ SLEEVE SPRING

## S12Q-GOLD PARTS BREAKDOWN

S36RL \_\_\_\_\_ UV LAMP  
QS-012 \_\_\_\_\_ QUARTZ SLEEVE  
OR-212 \_\_\_\_\_ O RING  
BA-ICE-3F \_\_\_\_\_ BALLAST (100-130V/50-60Hz. or  
200-250V/50-60Hz.)  
CB-1240UV \_\_\_\_\_ CIRCUIT BOARD (for 115V. unit)  
CB-1240UV/2 \_\_\_\_\_ CIRCUIT BOARD (for 230. unit)  
RN-001 \_\_\_\_\_ ALUMINUM RETAINING NUT  
CP-1240 \_\_\_\_\_ CIRCUIT BOARD COVER  
CS-001/Q \_\_\_\_\_ CORD SET (115V.)  
CS-EU/Q \_\_\_\_\_ EUROPEAN "SCHUKO" CORD SET (230V.)  
DP750 \_\_\_\_\_ RETAINING NUT PLUG  
SP-3/8 \_\_\_\_\_ 3/8" DRAIN PLUG  
SP008 \_\_\_\_\_ QUARTZ SLEEVE SPRING  
254NM-08 \_\_\_\_\_ UV SENSOR ASSEMBLY  
C-OM \_\_\_\_\_ O-RING FOR SENSOR ASSEMBLY  
C-MC \_\_\_\_\_ UV MONITOR NUT

## S24Q PARTS BREAKDOWN

S36RL \_\_\_\_\_ UV LAMP (2 required)  
QS-012 \_\_\_\_\_ QUARTZ SLEEVE (2 required)  
OR-212 \_\_\_\_\_ O RING  
BA-E36122 \_\_\_\_\_ BALLAST (100-250V/50-60Hz.)  
CB-2440A \_\_\_\_\_ CIRCUIT BOARD (for 115V. unit)  
CB-2440A/2 \_\_\_\_\_ CIRCUIT BOARD (for 230V. unit)  
RN-001 \_\_\_\_\_ ALUMINUM RETAINING NUT  
CP-1240 \_\_\_\_\_ CIRCUIT BOARD COVER  
CS-001/Q \_\_\_\_\_ CORD SET (115V.)  
CS-EU/Q \_\_\_\_\_ EUROPEAN "SCHUKO" CORD SET (230V.)  
DP750 \_\_\_\_\_ RETAINING NUT PLUG  
SP-3/8 \_\_\_\_\_ 3/8" DRAIN PLUG  
SP008 \_\_\_\_\_ QUARTZ SLEEVE SPRING

## S24Q-GOLD PARTS BREAKDOWN

S36RL \_\_\_\_\_ UV LAMP (2 required)  
QS-012 \_\_\_\_\_ QUARTZ SLEEVE (2 required)  
OR-212 \_\_\_\_\_ O RING  
BA-E36122 \_\_\_\_\_ BALLAST (100-250V/50-60Hz.)  
CB-1240UV \_\_\_\_\_ CIRCUIT BOARD (for 115V. unit)  
CB-1240UV/2 \_\_\_\_\_ CIRCUIT BOARD (for 230V. unit)  
RN-001 \_\_\_\_\_ ALUMINUM RETAINING NUT  
CP-1240 \_\_\_\_\_ CIRCUIT BOARD COVER  
CS-001/Q \_\_\_\_\_ CORD SET (115V.)  
CS-EU/Q \_\_\_\_\_ EUROPEAN "SCHUKO" CORD SET (230V.)  
DP750 \_\_\_\_\_ RETAINING NUT PLUG  
SP-3/8 \_\_\_\_\_ 3/8" DRAIN PLUG  
SP008 \_\_\_\_\_ QUARTZ SLEEVE SPRING  
254NM-09 \_\_\_\_\_ UV SENSOR ASSEMBLY  
C-OM \_\_\_\_\_ O-RING FOR SENSOR ASSEMBLY  
C-MC \_\_\_\_\_ UV MONITOR NUT

## S40Q PARTS BREAKDOWN

S36RL \_\_\_\_\_ UV LAMP (4 required)  
QS-012 \_\_\_\_\_ QUARTZ SLEEVE (4 required)  
OR-212 \_\_\_\_\_ O RING  
BA-E36122 \_\_\_\_\_ BALLAST (100-250V/50-60Hz.)  
CB-2440B \_\_\_\_\_ CIRCUIT BOARD (for 115V. unit)  
CB-2440B/2 \_\_\_\_\_ CIRCUIT BOARD (for 230V. unit)  
RN-001 \_\_\_\_\_ ALUMINUM RETAINING NUT  
CP-1240 \_\_\_\_\_ CIRCUIT BOARD COVER  
CS-001/Q \_\_\_\_\_ CORD SET (115V.)  
CS-EU/Q \_\_\_\_\_ EUROPEAN "SCHUKO" CORD SET (230V.)  
DP750 \_\_\_\_\_ RETAINING NUT PLUG  
SP-3/8 \_\_\_\_\_ 3/8" DRAIN PLUG  
SP008 \_\_\_\_\_ QUARTZ SLEEVE SPRING

# SPECIFICATIONS

MODEL		S12Q	S12Q-GOLD	S24Q	S24Q-GOLD	S40Q
<b>FLOW RATE</b>	US Public Health 16 mJ/cm <sup>2</sup>	109.8 lpm (29 gpm) (6.6 m <sup>3</sup> /Hr.)	109.8 lpm (29 gpm) (6.6 m <sup>3</sup> /Hr.)	219.6 lpm (58 gpm) (13.2 m <sup>3</sup> /Hr.)	219.6 lpm (58 gpm) (13.2 m <sup>3</sup> /Hr.)	367.2 lpm (97 gpm) (22.0 m <sup>3</sup> /Hr.)
	R-Can Standard 30 mJ/cm <sup>2</sup>	56.8 lpm (15 gpm) (3.4 m <sup>3</sup> /Hr.)	56.8 lpm (15 gpm) (3.4 m <sup>3</sup> /Hr.)	113.6 lpm (30 gpm) (6.8 m <sup>3</sup> /Hr.)	113.6 lpm (30 gpm) (6.8 m <sup>3</sup> /Hr.)	189.3 lpm (50 gpm) (11.4 m <sup>3</sup> /Hr.)
	NSF/EPA 40 mJ/cm <sup>2</sup>	41.6 lpm (11 gpm) (2.5 m <sup>3</sup> /Hr.)	41.6 lpm (11 gpm) (2.5 m <sup>3</sup> /Hr.)	83.3 lpm (22 gpm) (5.0 m <sup>3</sup> /Hr.)	83.3 lpm (22 gpm) (5.0 m <sup>3</sup> /Hr.)	140.1 lpm (37 gpm) (8.4 m <sup>3</sup> /Hr.)
<b>DIMENSIONS</b>	LENGTH	94 cm (37")	94 cm (37")	94 cm (37")	94 cm (37")	97 cm (38")
	WIDTH	17.8 cm (7")	17.8 cm (7")	17.8 cm (7")	17.8 cm (7")	22.9 cm (9")
	HEIGHT	20 cm (8")	20 cm (8")	24.1 cm (9.5")	24.1 cm (9.5")	30.5 cm (12")
	CELL DIAMETER	9 cm (3.5")	9 cm (3.5")	10.2 cm (4")	10.2 cm (4")	15 cm (6")
SHIPPING WEIGHT		10.5 kg. (23 lbs.)	10.5 kg. (23 lbs.)	10.9 kg. (24 lbs.)	10.9 kg. (24 lbs.)	23.1 kg. (51 lbs.)
<b>ELECTRICAL</b>	VOLTS <sup>2</sup>	100-130V./ 50-60Hz. <sup>2</sup>	100-130V./ 50-60Hz. <sup>2</sup>	100-130V./ 50-60Hz. <sup>2</sup>	100-130V./ 50-60Hz. <sup>2</sup>	100-130V./ 50-60Hz. <sup>2</sup>
	POWER CONSUMPTION	42 W	42 W	95 W	95 W	190 W
	TOTAL LAMP WATTS	39 W	39 W	78 W	78 W	156 W
MAXIMUM OPERATING PRESSURE		8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)
AMBIENT TEMPERATURE RANGE		2-40°C (36-104°F)	2-40°C (36-104°F)	2-40°C (36-104°F)	2-40°C (36-104°F)	2-40°C (36-104°F)
QUARTZ SLEEVE		YES (1)	YES (1)	YES (2)	YES (2)	YES (4)
DRAIN PLUG		3/8"	3/8"	3/8"	3/8"	3/8"
INLET/OUTLET PORT SIZE		Combo 1" MNPT/ 3/4" FNPT	Combo 1" MNPT/ 3/4" FNPT	1" MNPT	1" MNPT	1 1/2" MNPT
VISUAL "POWER ON"		YES	YES	YES	YES	YES
AUDIBLE LAMP FAILURE		YES	YES	YES	YES	YES
254nm UV MONITOR		NO	YES	NO	YES	NO
REMOTE ALARM OUTPUT		NO	Order IR-ALARM	NO	Order IR-ALARM	NO
SOLENOID OUTPUT (line voltage)		NO	YES	NO	YES	NO
CELL MATERIAL		304 S.S. <sup>3</sup>	304 S.S. <sup>3</sup>	316L S.S.	316L S.S.	316L S.S.
HOUSING MATERIAL		ANODIZED EXTRUDED ALUMINUM	ANODIZED EXTRUDED ALUMINUM	ANODIZED EXTRUDED ALUMINUM	ANODIZED EXTRUDED ALUMINUM	ANODIZED EXTRUDED ALUMINUM

- Flow rates stated @ 95% UVT<sub>10</sub> eol
- 200-250V./50-60Hz available on request\*
- 316L available on request

- \* /2 for 230V, SCHUKO CEE 7/7 (continental Europe)
- \* /2A for 230V, AS 3112 (AUSTRALIAN)
- \* /2B for 230V, BS 1363 (UK)
- \* /2C for 230V, BARE LEADS